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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/534,086

03/29/2007

David Lee Davidson

S-109

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93041

7590

01/21/2011

Solutia Inc.

575 Maryville Centre Drive

St. Louis, MO 63141

EXAMINER

CHIANG, TIMOTHY S

ART UNIT

PAPER NUMBER

1761

NOTIFICATION DATE

DELIVERY MODE

01/21/2011

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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<b>Office Action Summary</b>	<b>Application No.</b> 10/534,086	<b>Applicant(s)</b> DAVIDSON ET AL.	
	<b>Examiner</b> TIMOTHY CHIANG	<b>Art Unit</b> 1761	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 02 November 2010.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)         | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

This non-final rejection is made responsive to Applicant's Appeal Brief filed 10/25/2010. Applicant's arguments filed in the Appeal Brief have been carefully considered and found persuasive. The non-final rejection below re-opens the case. Claims 1-15 are currently pending. All outstanding rejections have been withdrawn.

#### ***Claim Rejections - 35 USC § 112***

1. Claims 8, 10-13 recites the limitation "ponderal ratio" in claim 1. There is insufficient antecedent basis for this limitation in the claim.
2. Claims 8, 10-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear what the "ponderal ratio" limitation is describing. Whether it is the weight ratio between two elements, or molar ratio, or other.

#### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

Art Unit: 1761

1. Determining the scope and contents of the prior art.
  2. Ascertaining the differences between the prior art and the claims at issue.
  3. Resolving the level of ordinary skill in the pertinent art.
  4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
5. Claims 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over J. S. Scoggin (US Pat. 3,227,526; hereinafter "Scoggin").

Regarding claims 1, 2, 4-7, 14-15, Scoggin discloses a fluid composition of a diluent consisting essentially of a mixture of paraffinic hydrocarbons such as n-hexane and 2,2,4-trimethylpentane, and cycloalkane-alkyl naphthenic hydrocarbons such as methylcyclohexane and ethylcyclohexane in combination (col. 1, line 40-col. 2, line 4). Scoggin discloses that the diluent is used in the context of olefin production, but is separated and isolated during the production process (col. 3, lines 65-66) and identifies the diluent composition as a heat transfer medium (col. 1, line 46) and used in such a way that the diluent temperature so introduced, is usable in maintaining a desired temperature within the polymerization zone (col. 3, lines 67-70), which meets the claimed limitation of a heat transfer fluid consisting essentially of component (c). Though Scoggin teaches the advantage of the diluent fluid's thermal transfer properties, and the adjustability of the diluent temperature upon introduction to a polymerization process, Scoggin does not teach specific ratios at which the aliphatic hydrocarbon and cycloalkane components are present in combination. Further, Scoggin does not disclose the components at such level that the composition (diluent) has a cloud point below -100C (or in the range from -110 to -175C as claimed in instant claim 15); a vapor pressure at +175C, below 1300 kPa (or below 827 kPa as claimed in instant claim 5);

Art Unit: 1761

and a viscosity, measured at the cloud point temperature +10C below 400cP (or below 300cP as claimed in instant claim 4).

While cloud points, vapor pressures and viscosities are inherent properties of such chemical compounds as n-hexane, 2,2,4-trimethylpentane, methylcyclohexane and ethylcyclohexane, one of ordinary skill in the art at the time of invention would have found obvious the adjustability of concentrations of the both aliphatic hydrocarbon content and cycloalkane content in combination to arrive at the claimed ranges according to desired results as it pertains to thermal transfer properties and within a reasonable expectation of success. Furthermore, such adjustments in concentrations do not impart patentability unless it is shown that the claimed range results in unexpected results different in kind and not merely in degree to that of the prior art. In re Boesch and Slaney, 205 USPQ 215 (CCPA 1980).

Regarding claims 10, 12 and 13, Scoggin is silent on the claimed ponderal ratio of cycloalkane component to aliphatic hydrocarbon of from 97:3 to 10:90, 80:20 to 25:75, or 70:30 to 35:65. However, one of ordinary skill in the art would have found obvious, as relied upon above, the adjustment of the concentrations between the two components to arrive at the claimed ponderal ratios as claimed according to desired results as it pertains to the thermal conductive properties utilized and disclosed in Scoggin and relied upon above. One of ordinary skill in the art would have found obvious the adjustability of such ranges according to desired results and with a reasonable expectation of success. Furthermore, such adjustments in concentrations do not impart patentability unless it is shown that the claimed range results in

Art Unit: 1761

unexpected results different in kind and not merely in degree to that of the prior art. In re Boesch and Slaney, 205 USPQ 215 (CCPA 1980).

Regarding claims 3, 8, 9, and 11 pertain to dependent limitations on group (a) or (b) of the Markush group claimed in rejected claim 1 as shown above (rejected group (c)). Therefore these claims stand rejected.

### ***Response to Arguments***

6. Applicant's arguments filed 10/25/2010 have been fully considered and are persuasive. All outstanding rejections have been withdrawn.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TIMOTHY CHIANG whose telephone number is (571)270-7348. The examiner can normally be reached on Monday - Thursday 9:00AM-5:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon can be reached on 571-272-1498. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1761

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Harold Y Pyon/  
Supervisory Patent Examiner, Art  
Unit 1761

/TIMOTHY CHIANG/  
Examiner, Art Unit 1761  
1/13/2011